CLAIM AMENDMENTS

The claims are amended as follows.

1. (Currently Amended) A method, comprising:

directing an optical beam into a first end of an optical path having the first end and a second end disposed in a semiconductor substrate;

reflecting a first portion of the optical beam having a first center wavelength back out from the first end of the optical path by alternating a first silicon material and a second silicon material in the semiconductor substrate along the optical path between the first end and the second end; and

tuning the optical path to reflect a second portion of the optical beam having a second center wavelength back out from the first end of the optical path.

2. (Original) The method of claim 1 further comprising confining the optical beam to remain within the optical path between the first and second ends with an optical waveguide disposed in the semiconductor substrate between the first and second ends.

3. (Cancelled)

4. (Currently Amended) The method of claim 1 wherein tuning the optical path comprises adjusting a temperature of the ~~semiconductor substrate~~ first silicon material and the second silicon material with a heater disposed proximate to the optical path through the semiconductor substrate.

5. – 6. (Cancelled)

7. (Currently Amended) The method of claim 1 wherein ~~reflecting the first portion of the optical beam comprises perturbing an effective index of refraction a plurality of times~~ alternating the first silicon material and the second silicon material in the semiconductor substrate along the optical path ~~to~~ forms a Bragg grating.

8. (Currently Amended) The method of claim 7 wherein ~~perturbing the effective index of refraction the plurality of times along the optical path~~ the second silicon material comprises ~~periodically or quasi-periodically disposing silicon and~~ polysilicon ~~in the semiconductor substrate along the path~~.

9. – 29. (Cancelled)

30. (New) A method, comprising:

directing an optical beam into a first end of an optical path having the first end and a second end disposed in a semiconductor substrate;

reflecting a first portion of the optical beam having a first center wavelength back out from the first end of the optical path by perturbing an effective index of refraction a plurality of times along the optical path with a plurality of insulated conductor structures protruding into the optical path; and

tuning the optical path to reflect a second portion of the optical beam having a second center wavelength back out from the first end of the optical path.

31. (New) The method of claim 30 wherein perturbing the effective index of refraction the plurality of times along the optical path comprises applying a voltage to the plurality of insulated conductor structures to perturb a concentration of free charge carriers a plurality of times along the optical path.

32. (New) The method of claim 30 wherein tuning the optical path comprises modulating charge in the optical path by modulating a voltage applied to the insulated conductor structures.

33. (New) The method of claim 30, further comprising confining the optical beam to remain within the optical path between the first and second ends with an optical waveguide disposed in the semiconductor substrate between the first and second ends.

34. (New) The method of claim 32 wherein confining the optical beam with the optical waveguide comprises forming the optical waveguide with dielectric layers of a silicon-on-insulator wafer.

35. (New) The method of claim 30 wherein perturbing an effective index of refraction a plurality of times along the optical path with a plurality of insulated conductor structures protruding into the optical path forms a Bragg grating.

36. (New) The method of claim 2 wherein confining the optical beam to remain with in the waveguide comprises forming the optical waveguide with dielectric layers of a silicon-on-insulator wafer.